

ANEUPLOIDY IN RAT EPIDIDYMAL SPERM AFTER TREATMENT WITH CARBENDAZIM, DETECTED WITH FLUORESCENCE IN SITU HYBRIDIZATION (FISH).

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The use of fluorescence in situ hybridization (FISH) with chromosome specific probes has been successfully used to investigate aneuploidy frequencies in epididymal sperm of untreated rats (Lowe et al., in prep.). To study whether exposure to chemicals can induce aneuploidy in mature sperm, rats received a single oral dose (gavage) of 0, 50, 150, 450 or 800 mg/kg bw or an i.p. injection of 150 mg/kg bw carbendazim in corn oil. No treatment-related effects on body weight or testes weight were observed. Epididymal sperm were isolated 31 and 50 days after treatment. A double-labeled FISH was performed on sperm from 9 rats (untreated: 1 rat, corn oil: 2 rats, 450 mg/kg oral: 2 rats, 800 mg/kg oral: 2 rats and 150 mg/kg i.p.: 2 rats, all sacrificed 31 days after treatment) with probes for chromosome 4 (25S5) and for chromosome Y (9.1Es8). Sperm were scored for chromosome 4 and Y hyperploidy. Preliminary results show an increase in hyperhaploid frequencies of both chromosomes among 5000 sperm scored from 2 rats in the 450 mg/kg oral group and from 1 rat in the 150 mg/kg i.p. dose group. For further analysis of the aneuploidy frequencies in sperm a triple-labeled FISH will be applied using probes for chromosomes Y, 4, 19 and/or X. [Work was performed in part under the auspices of the US DOE by the Lawrence Livermore Natl. Lab. under contract W-7405-ENG-48]